

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

providing a substrate in a process chamber of a processing system;

heating the substrate;

exposing a HCD process gas to the substrate; and

depositing a silicon-containing epitaxial ~~or silicon-germanium~~ film on the substrate using the HCD process gas.

Claim 2 (Original): The method according to claim 1, wherein the exposing comprises exposing an inert gas to the substrate.

Claim 3 (Previously Presented): The method according to claim 2, wherein the exposing further comprises flowing the HCD gas at a flow rate between about 5 sccm and about 1,000 sccm and the inert gas at a flow rate between about 5 sccm and about 20,000 sccm.

Claim 4 (Original): The method according to claim 1, wherein the exposing further comprises exposing a hydrogen-containing gas to the substrate.

Claim 5 (Original): The method according to claim 1, wherein the exposing further comprises exposing H<sub>2</sub> to the substrate.

Claim 6 (Previously Presented): The method according to claim 1, wherein the exposing further comprises flowing a hydrogen-containing gas at a flow rate between about 5 sccm and about 5,000 sccm.

Claim 7 (Original): The method according to claim 1, wherein the exposing further comprises exposing a second silicon-containing gas to the substrate.

Claim 8 (Original): The method according to claim 1, wherein the exposing further comprises exposing at least one of  $\text{SiH}_4$ ,  $\text{SiCl}_4$ ,  $\text{Si}_2\text{H}_6$ , and  $\text{SiH}_2\text{Cl}_2$  to the substrate.

Claim 9 (Previously Presented): The method according to claim 3, wherein the exposing further comprises flowing a second silicon-containing gas at a flow rate between about 5 sccm and about 1,000 sccm.

Claim 10 (Original): The method according to claim 1, wherein the exposing further comprises exposing a hydrogen-containing gas and a second silicon-containing gas to the substrate.

Claim 11 (Original): The method according to claim 1, wherein the exposing further comprises exposing  $\text{H}_2$  and at least one of  $\text{SiH}_4$ ,  $\text{SiCl}_4$ ,  $\text{Si}_2\text{H}_6$ , and  $\text{SiH}_2\text{Cl}_2$  to the substrate.

Claim 12 (Original): The method according to claim 1, wherein the exposing further comprises exposing a HCD gas and at least one of a phosphor-containing gas, a boron-containing gas, and a nitrogen-containing gas to the substrate.

Claim 13 (Previously Presented): The method according to claim 1, wherein the exposing further comprises exposing a HCD gas and at least one of  $\text{PH}_3$ ,  $\text{B}_2\text{H}_6$ ,  $\text{BCl}_3$ , and  $\text{AsH}_3$  to the substrate.

Claim 14 (Original): The method according to claim 1, wherein the exposing further comprises exposing a halogen-containing gas to the substrate.

Claim 15 (Original): The method according to claim 1, wherein the exposing further comprises exposing at least one of  $\text{HF}$ ,  $\text{F}_2$ ,  $\text{Cl}_2$ , and  $\text{HCl}$  to the substrate.

Claim 16 (Original): The method according to claim 1, wherein the exposing further comprises exposing a germanium-containing gas to the substrate.

Claim 17 (Previously Presented): The method according to claim 16, wherein the exposing further comprises exposing at least one of a hydrogen-containing gas, a dopant gas, and a halogen-containing gas to the substrate.

Claim 18 (Original): The method according to claim 1, wherein the exposing further comprises exposing at least one of  $\text{GeH}_4$  and  $\text{GeCl}_4$  to the substrate.

Claim 19 (Original): The method according to claim 1, wherein the exposing further comprises exposing a hydrogen-containing gas and a germanium-containing gas to the substrate.

Claim 20 (Original): The method according to claim 1, wherein the exposing further comprises exposing  $H_2$  and  $GeH_4$  to the substrate.

Claim 21-22 Canceled.

Claim 23 (Currently Amended): The method according to claim 1, wherein the exposing comprises exposing a HCD process gas including HCD gas and a germanium-containing gas to the substrate; and the depositing comprises depositing a SiGe-containing film on the substrate.

Claim 24 (Currently Amended): The method according to claim 23, wherein the depositing comprises selectively depositing a SiGe-containing film on a silicon surface.

Claim 25 (Currently Amended): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing film having a germanium content below about two atomic percent.

Claim 26 (Currently Amended): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing film having a germanium content greater than about two atomic percent.

Claim 27 (Original): The method according to claim 1, wherein the heating comprises heating the substrate to between about  $500^{\circ}C$  and about  $900^{\circ}C$ .

Claim 28 (Original): The method according to claim 1, wherein the heating comprising heating the substrate to between about 700°C and about 900°C.

Claim 29 (Currently Amended): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 800°C and the depositing comprises selectively depositing an epitaxial silicon-~~containing or silicon-germanium~~ film on a silicon surface of the substrate.

Claim 30 (Currently Amended): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 700°C and the depositing comprises non-selectively depositing the silicon-~~containing or silicon-germanium~~ film on the substrate.

Claim 31 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 100 Torr.

Claim 32 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 10 Torr.

Claim 33 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure of about 0.4 Torr.

Claim 34 (Original): The method according to claim 1, further comprising: pretreating the substrate prior to exposing a HCD process gas to the substrate.

Claim 35 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H<sub>2</sub> gas to the substrate at a substrate temperature between about 500°C and about 1000°C.

Claim 36 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H<sub>2</sub> gas to the substrate at a substrate temperature of about 900°C.

Claim 37 (Original): A computer readable medium containing program instructions for execution on a processor, which when executed by the processor, cause a processing apparatus to perform the steps in the method recited in claim 1.

Claim 38 (Currently Amended): A system for processing a substrate, comprising:  
means for providing a substrate in a process chamber of a processing system;  
means for heating the substrate;  
means for exposing a HCD process gas to the substrate to deposit a silicon-containing  
epitaxial ~~or silicon-germanium~~ film on the substrate.

Claim 39 (Currently Amended): A processing tool for depositing a silicon-  
containing ~~or silicon-germanium~~ film on a substrate comprising:  
a processing system;  
a transfer system configured to provide the substrate in a process chamber of the  
processing system;  
a heater for heating the substrate;

a gas injection system configured to expose a HCD process gas to the substrate in the processing system to form a silicon-containing epitaxial ~~or silicon-germanium~~ film on the substrate; and

a controller configured to control the processing tool.

Claim 40 (Original): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system or a single wafer processing system.

Claim 41 (Original): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system containing a process tube.

Claim 42 (Original): The processing tool according to claim 39, wherein the processing system comprises a thermal processing system, a plasma processing system, or an atomic layer deposition system.

Claim 43 (Original): The processing tool according to claim 39, further comprising a processing system configured for pretreating the substrate.

Claim 44 (Original): The processing tool according to claim 39, further comprising a process monitoring system.

Claim 45 (Original): The processing tool according to claim 39, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert

gas and at least one of a hydrogen-containing gas, a silicon-containing gas, and a germanium-containing gas to the substrate.

Claim 46 (Original): The processing tool according to claim 40, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert gas and at least one of a dopant gas and a halogen-containing gas to the substrate.

Claim 47 (Currently Amended): ~~The method according to claim 1,~~ A method of depositing a silicon-containing film on a substrate, the method comprising:  
providing a substrate in a process chamber of a processing system;  
heating the substrate;  
exposing a HCD process gas to the substrate; and  
depositing a silicon-containing epitaxial film on the substrate using the HCD process gas,

wherein the depositing comprises selectively depositing an epitaxial Si film on a crystalline Si substrate.

Claim 48 (Canceled).

Claim 49 (Currently Amended): ~~The method according to claim 1,~~ A method of depositing a silicon-containing film on a substrate, the method comprising:  
providing a substrate in a process chamber of a processing system;  
heating the substrate;  
exposing a HCD process gas to the substrate; and



depositing a silicon-containing epitaxial film on the substrate using the HCD process  
gas,

wherein the depositing comprises selectively depositing an epitaxial SiGe film on a  
crystalline Si substrate.

Claim 50-51 (Canceled).